Installation and Operating Guide

Model Number | P42W24P | Plasma Display Panel

zenith

© Copyright 2002, Zenith Electronics Corporation.

WARNING

WARNING
RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING:

TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

FCC NOTICE

- **A Class B digital device**
  This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - Consult the dealer or an experienced radio/TV technician for help.
- **Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.**

CAUTION:

Do not attempt to modify this product in any way without written authorization from Zenith Electronics Corporation. Unauthorized modification could void the user’s authority to operate this product.

COMPLIANCE:

The responsible party for this product’s compliance is:
Zenith Electronics Corporation
2000 Millbrook Drive
Lincolnshire, Il 60069, USA
Phone: 1-847-941-8000

WARNING
TO REDUCE THE RISK OF FIRE AND ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

SAFETY INSTRUCTIONS

Important safeguards for you and your new product

Your product has been manufactured and tested with your safety in mind. However, improper use can result in potential electrical shock or fire hazards. To avoid defeating the safeguards that have been built into your new product, please read and observe the following safety points when installing and using your new product, and save them for future reference.

Observing the simple precautions discussed in this booklet can help you get many years of enjoyment and safe operation that are built into your new product.

This product complies with all applicable U.S. Federal safety requirements, and those of the Canadian Standards Association.

1. Read Instructions
All the safety and operating instructions should be read before the product is operated.

2. Follow Instructions
All operating and use instructions should be followed.

3. Retain Instructions
The safety and operating instructions should be retained for future reference.

4. Heed Warnings
All warnings on the product and in the operating instructions should be adhered to.

5. Cleaning
Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. Water and Moisture
Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.

7. Accessories Carts and Stands
Do not place this product on a slippery or tilted surface, or on an unstable cart, stand, tripod, bracket, or table. The product may slide or fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

8. Transporting Product
A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

PORTABLE CART WARNING

9. Attachments
Do not use attachments not recommended by the product manufacturer as they may cause hazards.

10. Ventilation
Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

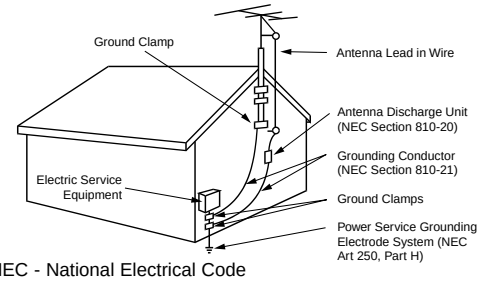
11. Power Sources
This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

12. Power-Cord Polarization
This product is equipped with a three-wire grounding type plug, a plug having a third (grounding) pin. This plug will only fit into the grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

13. Power-Cord Protection
Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

14. Outdoor Antenna Grounding
If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code (U.S.A.), ANSI/ NFPA 70 provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Example of Grounding According to National Electrical Code Instructions


Ground Clamp
Antenna Lead in Wire
Antenna Discharge Unit (NEC Section 810-20)
Grounding Conductor (NEC Section 810-21)
Electric Service Equipment
Ground Clamps
Power Service Grounding Electrode System (NEC Art 250, Part H)

NEC - National Electrical Code

(Continued on next page)

SAFETY INSTRUCTIONS

(Continued from previous page)

15. Lightning
For added protection for this product (receiver) during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

16. Power Lines
An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

17. Overloading
Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

18. Object and Liquid Entry
Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

19. Servicing
Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20. Damage Requiring Service
Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. If the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the product.
c. If the product has been exposed to rain or water.
d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
e. If the product has been dropped or the cabinet has been damaged.
f. If the product exhibits a distinct change in performance.

21. Replacement Parts
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

22. Safety Check
Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23. Wall or Ceiling Mounting
The product should be mounted to a wall or ceiling only as recommended by the manufacturer. The product may slide or fall, causing serious injury to a child or adult, and serious damage to the product.

24. Heat
The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

The PDP Manufacturing Process: Why colored dots may be present on the PDP screen

The PDP (Plasma Display Panel) which is the display device of this product is composed of 0.9 to 2.2 million cells. A few cell defects will normally occur in the PDP manufacturing process. Several colored dots visible on the screen should be acceptable. This also occurs in other PDP manufacturers' products and the dots appearing does not mean that this PDP is defective. Thus a few cell defects are not sufficient cause for the PDP to be exchanged or returned. Our production technology is designed to minimize cell defects.

Cooling Fan Noise

In the same way that a fan is used in a PC computer to keep the CPU (Central Processing Unit) cool, the PDP is equipped with cooling fans to cool the Monitor and improve its reliability. Therefore, a certain level of noise could occur while the fans are operating and cooling the PDP.
This noise doesn't have any negative effect on the PDP's efficiency or reliability. The noise from these fans is normal during the operation of this product. We hope you understand that a certain level of noise from the cooling fans is acceptable and is not sufficient cause for the PDP to be exchanged or returned.

Contents

Warnings 2
Safety Instructions . . . . . .3~4

Step 1. Monitor Installation & Setup
- Controls and Connection Options 6
- External Equipment Connections 7
- External Equipment Viewing Setups . . . . . .8~10
- Remote Control Key Functions 11
- Monitor Installation/Mounting Options 12
- Monitor Accessories 13

Step 2. Customize your Monitor's Features

Basic Features Setup and Operation
- Turning on the Monitor 14
- Menu Language Selection 14

Picture Menu Options
- APC (Auto Picture Control) 15
- Manual Picture Control 15

Sound Menu Options
- DASP (Digital Auto Sound Processing) 16
- Adjusting Sound (Manual Settings) 16
- AVL (Auto Volume Leveler) 16

Special Menu Options
- Menu Rotation for Vertical Viewing 17
- Orbiter 17
- White Wash 17
- Sleep Timer 17
- Adjusting Auto Color Control 18
- Manual Color Temperature Control 18
- Key Lock 18

Screen Menu Options
- Auto Adjustment 19
- Adjusting Horizontal/Vertical Position 19
- Picture Phase Adjustments 19
- Initializing 19
- Selecting Wide VGA mode 20
- Screen Adjustments 20
- Luminance Noise Reduction 20
- Setting Picture Format 21
- Split Zoom 21
- Picture Size Adjustment 21

PIP (Picture-in-Picture) Feature
- Watching PIP 22
- Selecting an Input Signal Source for PIP 22
- Using PIP Still Function 22
- Moving PIP 22
- Selecting PIP Sound Options 22

Twin Picture Setup Options
- Watching Twin Picture 23
- Selecting an Input Signal Source for Twin Picture .23
- Selecting Twin Picture Sound Options 23
- Using Sub Picture Still Function 23

Step 3. Miscellaneous
- External Control Device Setup . . . . . .24~29
- IR Code (NEC format) . . . . . .30~31
- Maintenance 32
- Troubleshooting Checklist 33
- Specifications 34

Setup and Operation Checklist

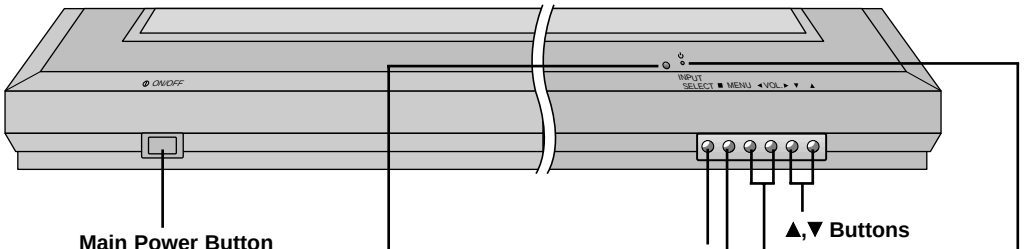
* See pages 7~9 for available connection and operational setup options.

1. Unpack Monitor and all accessories.
2. Connect all external video and audio equipment.
   see pages 7 ~ 9.
3. Install batteries in remote control.
   See page 11.
4. Turn Monitor on.
   See page 14.
5. Turn video source equipment on.
6. Select viewing source for Monitor.
   See page 11.
7. Fine-tune source image and sound to personal preference or as required by source.
   See pages 15 ~ 16.
8. Additional features Setup
   See Contents above.

After reading this manual, keep it handy for future reference.

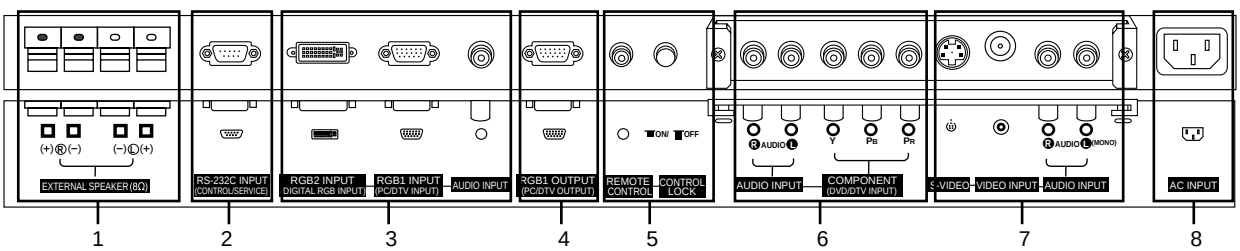
Monitor Controls

Front Panel Controls



Connection Options

Back Connections Panel



1. **EXTERNAL SPEAKER (8 ohm output)**
   Connect to optional external speaker(s).
   * For further information, refer to 'Speaker & Speaker Stand' manual.

2. **RS-232C INPUT (CONTROL/SERVICE) PORT**
   Connect to the RS-232C port on a PC.

3. **AUDIO INPUT/RGB1 INPUT (PC/DTV INPUT)/ RGB2 INPUT (DIGITAL RGB INPUT) JACKS**
   Connect the monitor output connector of a PC to the appropriate input port.

4. **RGB1 OUTPUT (PC/DTV OUTPUT) JACKS**
   You can watch the RGB1 signal on another monitor, connect RGB1 OUTPUT (PC/DTV OUTPUT) to another monitor's PC input port. Note: In standby mode, RGB1 output does not work.

5. **CONTROL LOCK Switch**
   REMOTE CONTROL
   When "CONTROL LOCK" is set to "ON", the Monitor is operable by the external control device.

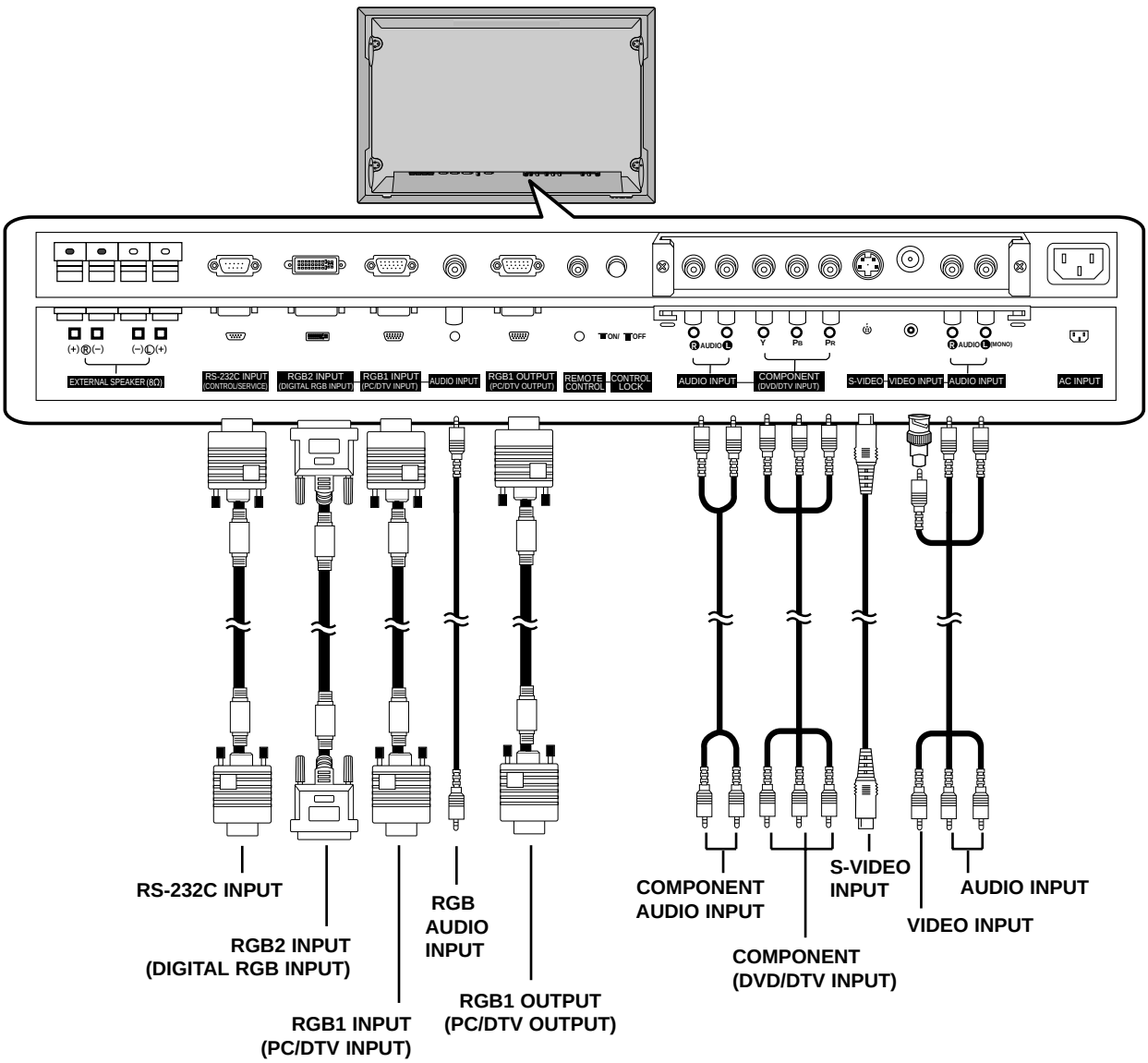
6. **COMPONENT (DVD/DTV INPUT)/AUDIO INPUT JACKS**

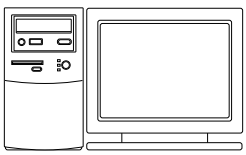
7. **AUDIO/VIDEO INPUT JACKS**
   Connect audio/video out from external equipment to these jacks.
   S-VIDEO INPUTS (S-VIDEO)
   Connect video out from an S-VIDEO VCR to the S-VIDEO input.

8. **POWER CORD SOCKET**
   This Monitor operates on an AC power. The voltage is indicated on the Specifications page. Never attempt to operate the Monitor on DC power.

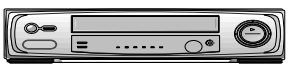
External Equipment Connections

Monitor External Equipment Connection Panel





Connection to PC



Connection to AV equipment

***Note**: The connection cables shown above to the right are not included with the Monitor. A D-Sub 15-Pin Cable and a DVI Cable (shown above to the left) are provided to connect the Monitor to a PC.*

External Equipment Viewing Setups

Watching VCR Setup

- If you have a mono VCR, connect the audio output cable from the VCR to the Monitor's AUDIO (L/MONO) input.
- If you connect an S-VIDEO VCR to the S-VIDEO input, the picture quality is improved; compared to connecting a regular VCR to the Video input.
- Avoid having a fixed image remain on the screen for a long period of time. Typically a frozen still picture from a VCR. If a 4:3 picture format is used; the fixed image may remain visible on the screen.
- To avoid picture noise (interference), leave an adequate distance between the VCR and Monitor.

How to connect
- Connect the VCR's Video output jack (yellow) to the BNC-RCA adapter provided then to the VIDEO INPUT on the Monitor and VCR audio outputs to Audio jacks of AUDIO INPUT.
- When connecting the Monitor to external equipment, match the colors of connecting jacks (Video = yellow, Audio (L) = white, Audio (R) = red).

How to use
1. Use the **INPUT SELECT** button on the remote control to select **VIDEO**.
(If connected to S-VIDEO, select the **S-VIDEO** external input source.)
2. Insert a video tape into the VCR and press the **PLAY** button on the VCR. (See VCR owner's manual)

Watching Cable TV Setup

- After subscribing to a cable TV service from a local provider and installing a converter, you can watch cable TV programming. This monitor cannot display TV programming unless a TV tuner device or cable TV converter box is connected to the Monitor.
- For further information regarding cable TV service, contact your local cable TV service provider(s).

How to connect
- Connect the cable box's Video output jack (yellow) to the BNC-RCA adapter provided then to the VIDEO INPUT on the Monitor and cable box's audio outputs to Audio jacks of AUDIO INPUT.

How to use
1. Use the **INPUT SELECT** button on the remote control and select **VIDEO**.
2. Tune to cable service provided channels using the cable box.

Watching External A/V Source Setup

How to connect
- Connect the external equipment's Video output jack (yellow) to the BNC-RCA adapter provided then to the VIDEO INPUT on the Monitor and external equipment's audio outputs to Audio jacks of AUDIO INPUT
- When connecting the monitor to an external source, match the colors of AUDIO/VIDEO input jacks on the monitor with the output jacks on the audio/video equipment: Video = yellow, Audio (Left) = white, Audio (Right) = red.

How to use
1. Use the **INPUT SELECT** button on the remote control to select **VIDEO**.
2. Operate the corresponding external equipment. See external equipment operating guide.

Watching DVD Setup

How to connect
- Connect DVD video outputs to Y, P_B, P_R of COMPONENT (DVD/DTV INPUT) and audio outputs to AUDIO INPUT jacks.
- If your DVD only has an S-Video output jack, connect DVD S-Video out to S-Video input on the monitor and DVD audio outputs to AUDIO INPUT jacks.

How to use
1. Turn on the DVD player, and insert a DVD.
2. Use **INPUT SELECT** button on the remote control to select **COMPONENT**. Refer to the DVD player's manual for operating instructions.

- **Component Input ports**
To get better picture quality, connect a DVD player to the component input ports as shown below.

Component ports of the Monitor	Y	P_B	P_R

Video output ports of DVD player	Y	Pb	Pr
	Y	B-Y	R-Y
	Y	Cb	Cr
	Y	P_B	P_R

Watching DTV Setup

- To watch digitally broadcast programs, purchase/connect a digital set-top box.
- This monitor supports HDCP (High-bandwidth Digital Contents Protection) protocol for DVI DTV (480p,720p,1080i) mode.

How to connect a user-supplied Digital Set-Top Box

- Connect DTV set-top box video output to monitor COMPONENT (DVD/DTV INPUT) or to the monitor RGB1 (PC/DTV INPUT), RGB2 (DIGITAL RGB INPUT) connector depending on your set-top box connectors.
- Connect DTV set-top box audio outputs to monitor AUDIO INPUT jacks.

How to use

1. Turn on the a digital set-top box. (Refer to the owner's manual for the digital set-top box)
2. Use **INPUT SELECT** on the remote control to select **COMPONENT** or **RGB 1**, **RGB 2**.

PC Setup

- To enjoy vivid picture and sound, connect a PC to the Monitor.
- Avoid keeping a fixed image on the monitor's screen for a long period of time. The fixed image may become permanently imprinted on the screen; use a screen saver when possible.
- Connect PC to the RGB1 INPUT(PC/DTV INPUT) or RGB2 INPUT (DIGITAL RGB INPUT) port on the Monitor; change the resolution output of PC accordingly.
- DDC protocol is preset for RGB1 (Analog RGB), and RGB2 (DVI, Digital RGB) modes.
- If required, adjust the monitor settings for Plug and Play functionally.
- If the graphic card on the PC does not output analog and digital RGB simultaneously, connect only one of both RGB1 INPUT (PC/DTV INPUT) or RGB2 INPUT (DIGITAL RGB INPUT) to display the PC on the monitor.
  If the graphic card on the PC does output analog and digital RGB simultaneously, set the monitor to either RGB1 or RGB2; (the other mode is set to Plug and Play automatically by the monitor.)
- DOS mode may not work depending on video card if using a DVI-I cable.
- To see a normal picture, match the VGA mode and DVI signal (640x480, 848x480, 852x480). (See page 20.)
- There may be noise associated with the resolution, vertical pattern, contrast or brightness in PC mode. If noise is present, change the PC mode to another resolution, change the refresh rate to another rate or adjust the brightness and contrast on the menu until the picture is clear. If the refresh rate of the PC graphic card can not be changed, change the PC graphic card or consult the manufacturer of the PC graphic card.
- The synchronization input form for Horizontal and Vertical frequencies is separate.

Setup Instructions to Connect a PC to your Monitor

- We recommend using 640x480, 60Hz for the PC mode, to get the best picture quality.
- If the resolution of PC is over UXGA, there will be no picture on the Monitor.
- Connect the signal cable from the PC's monitor output port to the Monitor's RGB1 INPUT (PC/DTV INPUT) port or the signal cable from the PC's DVI output port to the Monitor's RGB2 INPUT (DIGITAL RGB INPUT) port.
- Connect the audio cable from the PC to the AUDIO INPUT jacks on the Monitor. (Audio cables are not included with the Monitor).
- If using a sound card, adjust PC sound as required.
- This monitor provides a VESA Plug and Play capability. The monitor sends EDID data to the PC system with a DDC protocol. The PC adjusts automatically to use this monitor.
- The monitor perceives 640x480, 60Hz as DTV 480p based on the PC graphic card. In this case, change the screen scanning rate for the graphic card.

How to use

1. Turn on the PC and the Monitor.
2. Turn on the display by pressing the **POWER** button on the Monitor's remote control.
3. Use the **INPUT SELECT** button on the remote control to select the **RGB 1** or **RGB 2** input source.
4. Set the resolution output of the PC to SXGA or under (1280 x 1024, 60Hz).

Monitor Display Specifications

RGB1 Mode

Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	DDC
640x350	31.468	70.09	
	37.861	85.08	
640x400	31.469	70.08	o
	37.927	85.03	o
640x480	31.469	59.94	o
	35.000	66.66	o
	37.861	72.80	o
	37.500	75.00	o
	43.269	85.00	
	45.913	90.03	
	53.011	100.04	
	64.062	120.00	
800x600	35.156	56.25	o
	37.879	60.31	o
	48.077	72.18	o
	46.875	75.00	o
	53.674	85.06	
	56.000	90.00	
	64.016	100.00	

Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	DDC
832x624	49.725	74.55	o
848x480 or 852x480	31.469	59.94	
	35.000	70.06	
	37.500	75.00	
1024x768	48.363	60.00	o
	56.476	70.06	o
	60.023	75.02	o
	68.677	84.99	
1152x864	54.348	60.05	o
	63.995	70.01	o
	67.500	75.00	o
	77.487	85.05	
1152x870	68.681	75.06	o
1280x960	60.000	60.000	o
	75.000	75.00	o
1280x1024	63.981	60.02	o

RGB2 Mode

Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	DDC
640x350	31.468	70.09	
	37.861	85.08	
640x400	31.469	70.08	o
	37.927	85.03	o
640x480	31.469	59.94	o
	35.000	66.66	
	37.861	72.80	
	37.500	75.00	
	43.269	85.00	
	45.913	90.03	
	53.011	100.04	
	64.062	120.00	
800x600	35.156	56.25	o
	37.879	60.31	
	48.077	72.18	
	46.875	75.00	
	53.674	85.06	
	56.000	90.00	
	64.016	100.00	

Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	DDC
832x624	49.725	74.55	o
848x480 or 852x480	31.469	59.94	
	35.000	70.06	
	37.500	75.00	
1024x768	48.363	60.00	o
	56.476	70.06	
	60.023	75.02	
	68.677	84.99	
1152x864	54.348	60.05	o
	63.995	70.01	
	67.500	75.00	
	77.487	85.05	
1152x870	68.681	75.06	o
1280x960	60.000	60.000	o
	75.000	75.00	
1280x1024	63.981	60.02	o

Remote Control Key Functions

- When using the remote control, aim it at the remote control sensor on the Monitor.
- Under certain conditions or if the IR code from remote is interrupted, function may not occur. Repeat key presses if necessary.

POWER
Switches the Monitor on from standby or off to standby.

SLEEP
Sets the sleep timer. (Refer to p.17)

APC
Adjusts the factory preset picture according to the room. (Refer to p.15)

ARC
Changes the picture format. (Refer to p.21)

ZOOM-
Reduces the main picture size. (Refer to p. 21)

SPLIT ZOOM
Enlarges a screen section. (Refer to p. 21)

MENU
Displays on screen menus.
Exits the current menu.
Memorizes menu changes.

PIP
Switches the sub picture on and off. (Refer to p. 22)

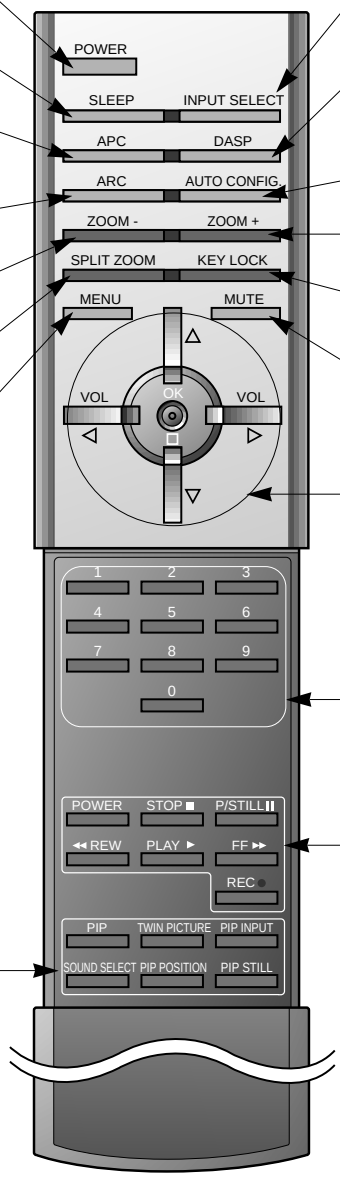
TWIN PICTURE
(Refer to p. 23)

PIP INPUT
Selects the input source for the sub picture. (Refer to p. 22, 23)

SOUND SELECT
Selects main picture sound or sub picture sound for PIP .(Refer to p. 22, 23)

PIP POSITION
Changes the sub picture position. (Refer to p. 22)

PIP STILL
Freezes sub picture motion. (Refer to p. 22, 23)



INPUT SELECT
Selects: **VIDEO**, **S-VIDEO**, **RGB1-2** or **COMPONENT** mode.

DASP
Selects the sound appropriate to your viewing program character: **FLAT**, **SPORTS**, **CINEMA**, **MUSIC**, or **USER** (Refer to p.16)

AUTO CONFIG
(Refer to p.19)

ZOOM+
Enlarges the main picture size. (Refer to p. 21)

KEY LOCK
To operate the monitor with remote control only. (Refer to p. 18)

MUTE
Switches the sound on or off.

OK

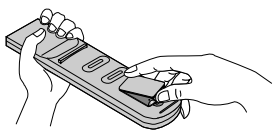
▲ / ▼
Select menu options.

◀ / ▶ (Volume button)
Increases/decreases sound level.
Adjusts menu settings.

NUMBER buttons

VCR BUTTONS
Control some video cassette recorders.

Installing Batteries

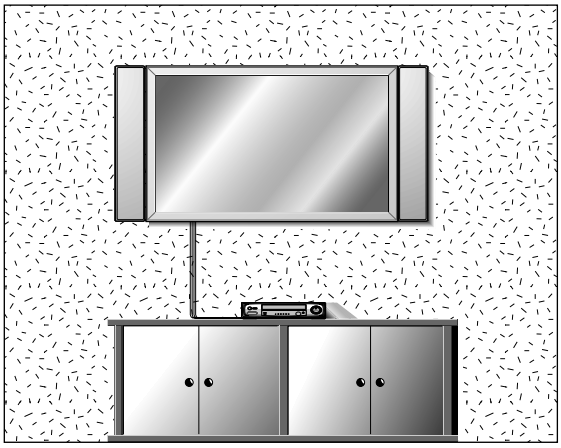


- Open the battery compartment cover on the back side and insert the batteries with correct polarity.
- Install two AAA 1.5V alkaline batteries. Don't mix used batteries with new batteries.

Monitor Installation Options

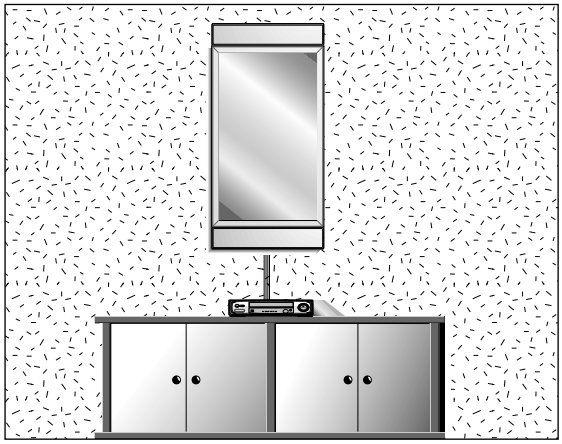
- The Monitor can be installed in different ways such as on a wall, or on a desktop etc.
- Install this monitor only in a location where adequate ventilation is available.
- This monitor is designed so that it can be mounted either horizontally or vertically.

Wall Mount: Horizontal Installation



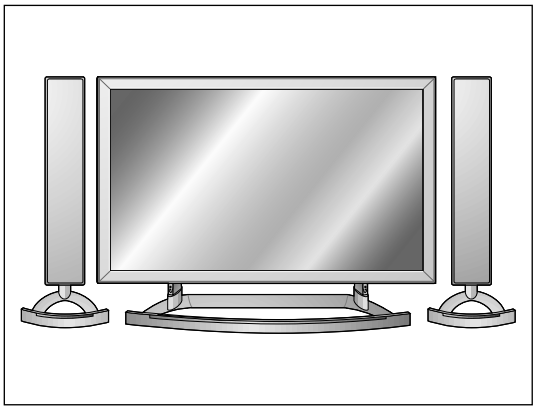
- The monitor can be installed on a wall as shown above. (For further information, refer to the optional ‘Wall Mounting Bracket Installation and Setup Guide’.)
- Speakers are optional, and are shown for illustration only.

Wall Mount: Vertical Installation



- The monitor can be installed vertically on the wall as shown above.(For further information, refer to the optional ‘Wall Mounting Bracket Installation and Setup Guide’.)
  Caution: When installing the monitor vertically, the front panel controls must be in the left-down side position as shown above.
- Speakers are optional, and are shown for illustration only.
- **Note:** To use the Monitor in a vertical orientation, the source's image must also be in a vertical format.

Desktop Pedestal Installation

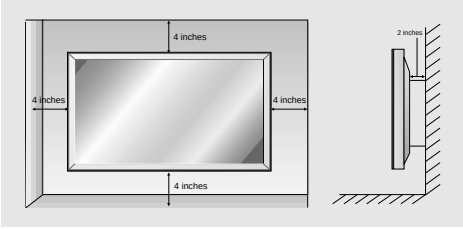


- The Monitor can be mounted on a desk as shown above. (For further information, refer to the optional 'Desktop Stand Installation and Setup Guide'.)
- Speakers and speaker stands shown are optional, and are shown for example only.

- When installing the monitor vertically, you have to change the menu display mode so that the menus will appear correctly and also to protect the monitor from overheating (Refer to p. 17).
- Install this monitor only in a location where adequate ventilation is available.

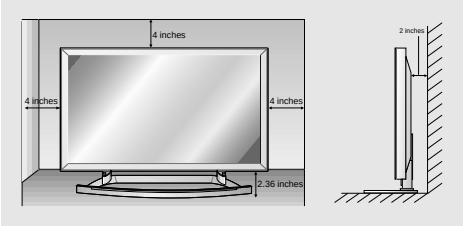
To Mount on a Wall

Wall mount minimum allowable clearances for adequate ventilation.



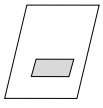
To Install on a Desktop

Pedestal mount minimum allowable clearances for adequate ventilation.

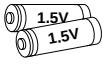


Monitor Accessories

Accessories



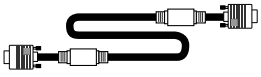
Owner's Manual



Alkaline Batteries

BNC-RCA Adapter

Remote Control



D-Sub 15-Pin Cable

Power Cord

DVI-D Cable

Turning on the Monitor

- When using the remote control, aim it at its sensor on the Monitor.

Turning on the Monitor just after installation

1. Connect power cord correctly.
2. Press the ⏻ **ON/OFF** button on the Monitor. At this moment, the Monitor is switched to standby mode. Press the **INPUT SELECT** button on the Monitor or press the **POWER**, button on the remote control to switch the Monitor on.

Turning on the Monitor (power cord is still connected)

1. If the Monitor was turned off with the ⏻ ON/OFF button on the Monitor

- Press the ⏻ **ON/OFF** button on the Monitor to turn the Monitor on.

2. If the Monitor was turned off with the remote control and the ⏻ ON/OFF button on the Monitor

- Press the ⏻ **ON/OFF** button on the Monitor and then press the **INPUT SELECT** button on the Monitor. Or, on the remote control, press **POWER**, or **INPUT SELECT** to turn the Monitor on.

Menu Language Selection

- The menus can be shown on the screen in the selected language. First select your language.

1. Press the **MENU** button and then use ▲ / ▼ button to select the SPECIAL menu.
2. Press the ► button and then use ▲ / ▼ button to select **LANGUAGE**.
3. Press the ► button and then use ▲ / ▼ button to select your desired language.
   From this point on, the on-screen menus will be shown in the language of your choice.
4. Press the **MENU** button.

Picture Menu Options

APC (Auto Picture Control)

- APC adjusts the Monitor for the best picture appearance.
- APC is not available in RGB 1,2 (PC) mode.
- When adjusting picture options (contrast, brightness, color, sharpness and tint) manually, APC automatically changes to **USER**.

1. Use the **APC** button to select the picture appearance setup option.

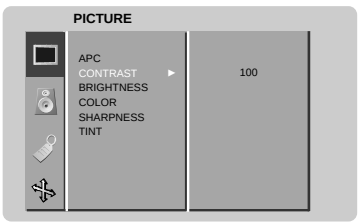
   • Each press of the **APC** button or ◄ / ► button changes the menu option as shown below.

   • You can also select **CLEAR**, **SOFT** or **USER** in the **PICTURE** menu.
   • Picture options **CLEAR** and **SOFT** are preset for good picture quality at the factory and cannot be changed.

Manual Picture Control (User option)

- You can adjust picture contrast, brightness, color, sharpness and tint to the levels you prefer.
- In PIP and twin picture modes, settings are not adjustable.

1. Press the **MENU** button and then use ▲ / ▼ button to select the PICTURE menu.
2. Press the ► button and then use ▲ / ▼ button to select the desired picture option.
3. Press the ► button and then use ◄ / ► button to make appropriate adjustments.
4. Press the **MENU** button.



Sound Menu Options

DASP (Digital Auto Sound Processing)

- This function lets you enjoy the best sound without any special adjustment because the Monitor automatically selects the appropriate sound option based on the program content.
- When adjusting sound options (treble, bass, and balance) manually, DASP automatically changes to **USER**.

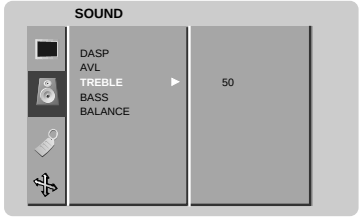
1. Use the **DASP** button to select the appropriate sound setup.
   - Each press of the **DASP** button or ◄ / ► button changes the menu option as shown below.

   - You can also select **FLAT**, **SPORTS**, **CINEMA**, **MUSIC**, or **USER** in the **SOUND** menu.
   - Sound options **FLAT**, **SPORTS**, **CINEMA** and **MUSIC** are preset for good sound quality at the factory and cannot be changed.

Manual Sound Control (User option)

- You can adjust sound treble, bass, and balance to the levels you prefer.

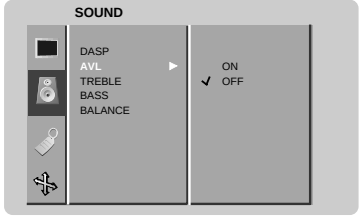
1. Press the **MENU** button and then use ▲ / ▼ button to select the SOUND menu.
2. Press the ► button and then use ▲ / ▼ button to select the desired sound option.
3. Press the ► button and then use ◄ / ► button to make appropriate adjustments.
4. Press the **MENU** button.



AVL (Auto Volume Leveler)

- AVL maintains an equal volume level; even if you change channels.

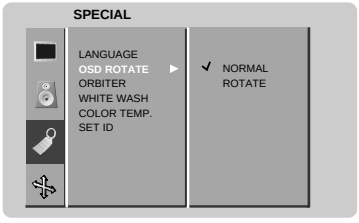
1. Press the **MENU** button and then use ▲ / ▼ button to select the SOUND menu.
2. Press the ► button and then use ▲ / ▼ button to select **AVL**.
3. Press the ► button and then use ▲ / ▼ button to select **ON** or **OFF**.
4. Press the **MENU** button.



Special Menu Options

Menu Rotation for Vertical Viewing

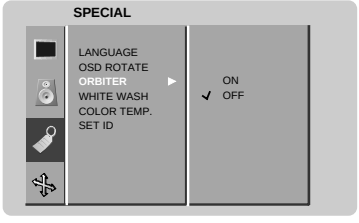
1. Press the **MENU** button and then use ▲ / ▼ button to select the SPECIAL menu.
2. Press the ► button and then use ▲ / ▼ button to select **OSD ROTATE**.
3. Press the ► button and then use the ▲ / ▼ button to select **NORMAL** or **ROTATE**.
   • Select **NORMAL**: if the monitor is installed horizontally.
   • Select **ROTATE**: if the monitor is installed vertically.
4. Press the **MENU** button.



Orbiter

- Avoid allowing a fixed image to remain on the Monitor's screen for a long period of time. A frozen still picture from a PC/video game displayed on the screen for prolonged periods will result in an ghost image remaining even when you change the image.
- To help avoid a permanent image on the screen, the picture will move every 2 minutes:
  Left → Downside → Right → Upside → Upside → Right → Downside → Left
- The Orbiter feature may help prevent ghost images. However, it is best not to allow any fixed image to remain on the screen.

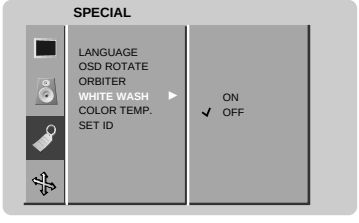
1. Press the **MENU** button and then use ▲ / ▼ button to select the SPECIAL menu.
2. Press the ► button and then use ▲ / ▼ button to select **ORBITER**.
3. Press the ► button and then use ▲ / ▼ button to select **ON** or **OFF**.
4. Press the **MENU** button.



White Wash

- White Wash removes permanent images from the screen.
- Set **White Wash** '**ON**' until fixed image disappears. To return to the viewing screen, set **White Wash** to '**OFF**'.
- Note: An excessive permanent image may be impossible to clear entirely with White Wash.

1. Press the **MENU** button and then use ▲ / ▼ button to select the SPECIAL menu.
2. Press the ► button and then use ▲ / ▼ button to select **WHITE WASH**.
3. Press the ► button and then use ▲ / ▼ button to select **ON** or **OFF**.
   • When you select **ON**, the screen changes to white.
4. Press the **MENU** button.



Sleep Timer

- Sleep Timer turns the Monitor off at the preset time.
- Press the **SLEEP** button repeatedly to select the number of minutes. First the zz **--- min.** option will appear on the screen, followed in sequence by **10**, **20**, **30**, **60**, **90**, **120**, **180**, and **240** minutes.
- When the turn off time you want is displayed on the screen, press the **OK** button.
  The timer begins to count down from the number of minutes selected.

a. To check the remaining minutes before turn off, press the SLEEP or OK button once.
b. To cancel the Sleep Timer setting, press the SLEEP button repeatedly until zz **--- min.** appears.
c. If you turn the monitor off after setting the Sleep Timer, the setting will be erased.

Special Menu Options

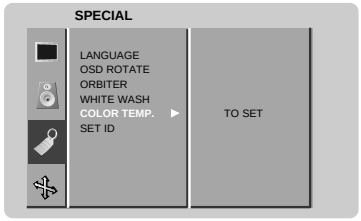
Adjusting Auto Color Control

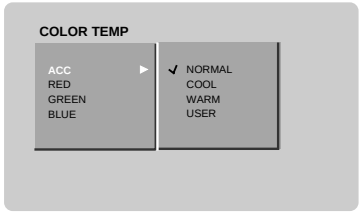
- To initialize values (reset to default settings), select the **NORMAL** option.
- When adjusting color temperature options (red, green, or blue) manually, ACC automatically changes to **USER**.

1. Press the **MENU** button and then use ▲ / ▼ button to select the SPECIAL menu.
2. Press the ► button and then use ▲ / ▼ button to select **COLOR TEMP** .
3. Press the ► button and then use ▲ / ▼ button to select **ACC**.
4. Press the ► button and then use ▲ / ▼ button to select the desired color temperature.
   - Each press of ▲ / ▼ button changes the menu option as shown.

NORMAL ◄► **COOL** ◄► **WARM** ◄► **USER** ◄

   - Color temperature options **NORMAL**, **COOL** and **WARM** are preset at the factory and cannot be changed.

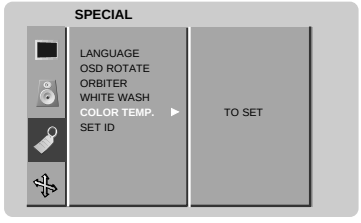




Manual Color Temperature Control (User option)

- You can adjust red, green, or blue to any color temperature you prefer.

1. Press the **MENU** button and then use ▲ / ▼ button to select the SPECIAL menu.
2. Press the ► button and then use ▲ / ▼ button to select **COLOR TEMP** .
3. Press the ► button and then use ▲ / ▼ button to select a color.
4. Use the ◄ / ► button to make appropriate adjustments.
5. Press the **MENU** button.
   - The adjustment range of **RED**, **GREEN**, and **BLUE** is -10 ~ +10.



Key Lock

- The monitor can be set up so that it can only be operated with the remote control.
- This feature can be used to prevent unauthorized viewing.

1. Press the **KEY LOCK** button.
   - Each press of the **KEY LOCK** button changes the menu option as shown below.

ON ◄► **OFF**

- This Monitor is programmed to remember which option it was last set to even if you turn the monitor off.
- In **KEY LOCK** '**ON**', if the monitor is turned off with the remote control, press the **INPUT SELECT** button on the monitor or **POWER,** or **INPUT SELECT** on the remote control to turn the Monitor on.
- With the KEY LOCK ON, the display '⚠ **KEY LOCK**' appears on the screen if any button on the front panel is pressed.

Screen Menu Options

Auto Adjustment (RGB1 (PC) mode only)

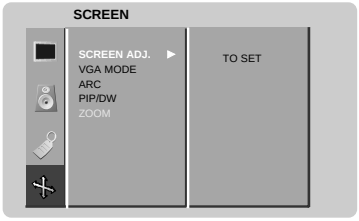
- Automatically adjusts picture position and minimizes image shaking.
- If the image is still not correct, your Monitor is functioning properly but needs further adjustment.

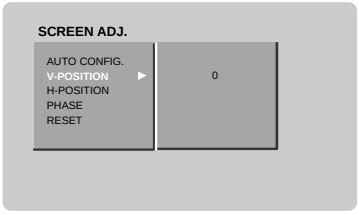
1. Press the **AUTO CONFIG.** button to run Auto configure.
   • If the position of the image is still not correct, try Auto adjustment again.
2. If picture needs to be adjusted more after Auto adjustment in RGB1 mode, you can manually adjust the image's **V-POSITION**/**H-POSITION** and **PHASE**.

Adjusting Horizontal/ Vertical Position

- You can only adjust **V-POSITION/H-POSITION** in DTV (480p,720p,1080i), COMPONENT (480p,720p,1080i), RGB1 (PC) modes.

1. Press the **MENU** button and then use ▲ / ▼ button to select the SCREEN menu.
2. Press the ► button and then use ▲ / ▼ button to select **SCREEN ADJ.**.
3. Press the ► button and then use ▲ / ▼ button to select **V-POSITION** or **H-POSITION**.
4. Press the ► button and then use the ◄ / ► button to make adjustments until you get desired horizontal or vertical position.
   • The adjustment range of **V-POSITION** is -50 ~ +50.
   • The adjustment range of **H-POSITION** is -100 ~ +100.
   • Based on the PC resolution, the adjustment range of **V-POSITION/H-POSITION** may change.
   • Based on input signal, the position of the picture may not change even though you have adjusted the horizontal or vertical position with this function.
5. Press the **MENU** button.

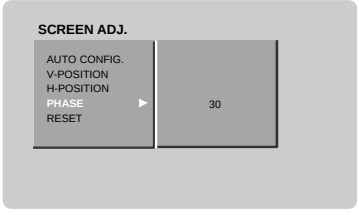




Picture Phase Adjustments (RGB1 (PC) mode only)

- If the picture isn't clear after auto adjustment and especially if characters are still jittery, adjust the picture phase manually.

1. Press the **MENU** button and then use ▲ / ▼ button to select the SCREEN menu.
2. Press the ► button and then use ▲ / ▼ button to select **SCREEN ADJ.**.
3. Press the ► button and then use ▲ / ▼ button to select **PHASE**.
4. Press the ► button and then use the ◄ / ► button to adjust phase.
   • The adjustment range of **PHASE** is 0 ~ 63.
5. Press the **MENU** button.



Initializing (Reset to original factory value)

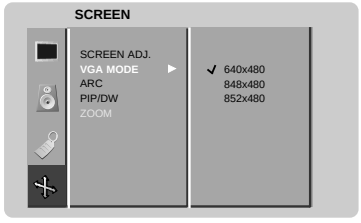
- To initialize the adjusted value, select **RESET** with the ▲ / ▼ button in step 3 of 'picture phase adjustments' and then press the ► button.

Screen Menu Options

Selecting Wide VGA mode (RGB1, RGB2 [PC] mode only)

- To see a normal picture, match the resolution of RGB mode with the appropriate VGA format..
- If 852x480 or 848x480 is selected, the aspect ratio is changed to 16:9 automatically.
  With this setup, Twin Picture mode is not available.

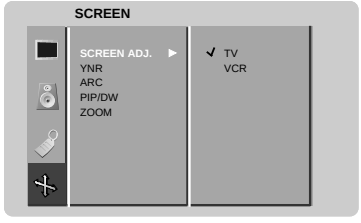
1. Press the **MENU** button and then use ▲ / ▼ button to select the SCREEN menu.
2. Press the ► button and then use ▲ / ▼ button to select **VGA MODE**.
3. Press the ► button and then use ▲ / ▼ button to select the desired VGA resolution.
4. Press the **MENU** button.



Screen Adjustments (VIDEO and S-VIDEO modes only)

- Use this function to correct jittering or picture instability while viewing a video tape.

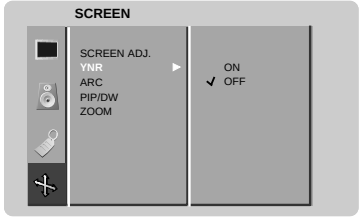
1. Press the **MENU** button and then use ▲ / ▼ button to select the SCREEN menu.
2. Press the ► button and then use ▲ / ▼ button to select **SCREEN ADJ.**.
3. Press the ► button and then use ▲ / ▼ button to select **TV** or **VCR**.
   • Select the **VCR** option if watching a VCR.
   • Select the **TV** option for other equipment. (Except VCR.)
4. Press the **MENU** button.



Luminance Noise Reduction (VIDEO, S-VIDEO and COMPONENT 480i modes only)

- Use YNR to reduce the picture noise which may appear on the screen if watching the TV in a weak signal area.

1. Press the **MENU** button and then use ▲ / ▼ button to select the SCREEN menu.
2. Press the ► button and then use ▲ / ▼ button to select **YNR**.
3. Press the ► button and then use ▲ / ▼ button to select **ON** or **OFF**.
4. Press the **MENU** button.



Setting Picture Format

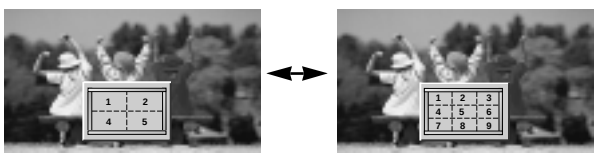
- Picture formats 4:3 and 16:9 are available for RGB1 and RGB2 (PC) modes.
- Picture formats 16:9, 4:3 and ZOOM are available in VIDEO, S-VIDEO, RGB-DTV, and COMPONENT modes.
- If a 4:3 fixed image is on the screen for a long time, it may remain visible.

1. Use the **ARC** button to select the desired picture format.
   - Each press of **ARC** button or ◄ / ► button changes the picture format as shown below.
   - You can also select picture formats **16:9**, **4:3**, or **ZOOM** in the SCREEN menu.

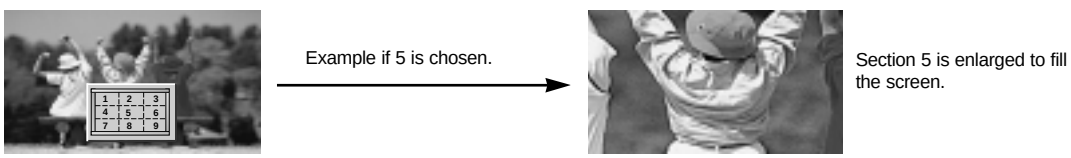
Split Zoom

- Enlarges the picture in correct proportion.
- Split Zoom can be used for every input source.

1. Press the **SPLIT ZOOM** button.
   - Each press of **SPLIT ZOOM** button changes the picture format options as shown below.



- On the remote, press the number button of the section to enlarge. If you choose 5, Section 5 will be enlarged.



Picture Size Zoom (RGB1 [DTV], RGB2 [DTV], COMPONENT, VIDEO, S-VIDEO modes only)

- When enlarging or reducing the picture, the image may become distorted.

1. Use **ZOOM+/ZOOM-** button to enlarge or reduce the picture size.
   - The adjustment range of Zoom is 0 ~ 20.

2. Adjust the main picture position with the ▲ / ▼ / ◄ / ► buttons in enlarged picture mode.

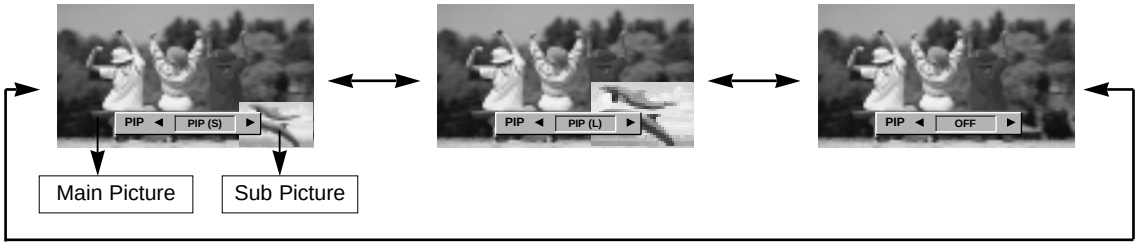
PIP (Picture-in-Picture) Feature

- PIP lets you view 2 different inputs pictures (sources) on your monitor screen at the same time. One source will be large, and the other source will show a smaller inset image.
- When you select PC (RGB1, RGB2) for main picture in PIP, you can watch DTV (480p, 720p, 1080i), VIDEO, S-VIDEO or DVD for sub picture.
- If you turn on PIP while viewing RGB1 (DTV), COMPONENT, VIDEO, or S-VIDEO, the source is changed to sub picture input source and main picture source is changed to PC (RGB1, RGB2).
- If PIP doesn't work, select PC (RGB1, RGB2) for main picture source with PIP on to determine if the PC signal is being received by the monitor.
- In RGB2 (DTV), PIP mode is not available.

Watching PIP (RGB1, RGB2 mode only)

Press the **PIP** button to show the sub picture.

- Each press of **PIP** button or ◄ / ► button changes the PIP option as shown below.



Selecting an Input Signal Source for PIP

Use the **PIP INPUT** button to select the input source for the sub picture.

- Each press of **PIP INPUT** button or ◄ / ► button changes the PIP source.
- In RGB1 (PC) for main picture, you can select COMPONENT, VIDEO and S-VIDEO for sub picture.
- In RGB2 (PC) for main picture, you can select RGB1 (DTV), COMPONENT, VIDEO and S-VIDEO for sub picture.

Using PIP Still Function

1. Press the **PIP STILL** button in the PIP mode.
   - In PIP mode, the PIP (inset) picture's image is frozen.
   - The frozen picture is automatically released after about 10 minutes.
   - If a still picture is on the screen for more than 5 minutes, the image becomes dark. If another function is activated, then normal screen brightness is restored.
2. To return to normal viewing, press the **PIP STILL** button again.

Moving PIP

Press the **PIP POSITION** button in the PIP mode.

- Each press of the **POSITION** button moves the PIP picture to a different position on the screen in a clockwise direction.

Selecting PIP Sound Options

Press the **SOUND SELECT** button to select main image sound (**SOUND**(**M**)) or PIP (inset image) sound (**SOUND**(**S**)).

- Each press of **SOUND SELECT** button or ◄ / ► button changes the sound option as shown below.

SOUND(M) ◄► **SOUND(S)**

Twin Picture Setup Option

- As the name suggests, this mode splits the screen into 2, allowing 2 picture sources to be shown on the monitor screen at the same time. Each source is given half the screen.
- When you select PC (RGB1, RGB2) for main picture in Twin Picture mode, you can watch DTV (480p, 720p, 1080i), VIDEO, S-VIDEO or DVD for sub picture.
- If you turn on Twin Picture while viewing RGB1 (DTV), COMPONENT, VIDEO, or S-VIDEO, the source is changed to sub picture input source and main picture source is changed to PC (RGB1, RGB2).
- If twin picture doesn't work, select PC (RGB1, RGB2) for main picture in twin picture and then check it whether PC signal input into the monitor.
- In RGB2 (DTV) and wide VGA (848x480, 852x480) modes, Twin picture mode is not available.

Watching Twin Picture

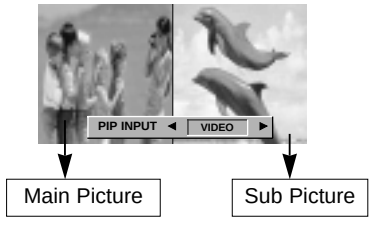
Press the **TWIN PICTURE** button.

- Each press of the **TWIN PICTURE** button cycles through the menu options shown below.

Selecting an Input Signal Source for the Twin Picture

Use the **PIP INPUT** button to select an input source for the sub picture.

- Each press of **PIP INPUT** button or ◄ / ► button changes the input source.
- In RGB1 (PC) for main picture, you can select COMPONENT, VIDEO and S-VIDEO for sub picture.
- In RGB2 (PC) for main picture, you can select RGB1 (DTV), COMPONENT, VIDEO, or S-VIDEO for sub picture.



Selecting Twin Picture Sound Options

Use the **SOUND SELECT** button to select main picture sound (**SOUND**(**M**)) or sub picture sound (**SOUND**(**S**)).

- Each press of **SOUND SELECT** button or ◄ / ► button changes the sound option as shown below.

Using Sub Picture Still Function

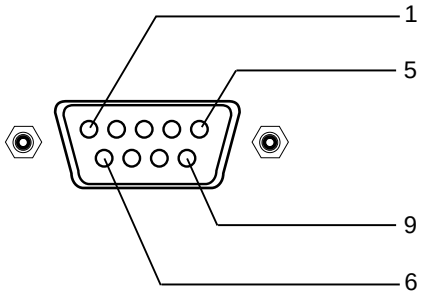
1. Press the **PIP STILL** button in the twin picture mode.
   - In TWIN PICTURE mode, the sub (inset) picture is frozen.
   - The frozen picture is released automatically after about 10 minutes.
   - If a still picture is on the screen for more than 5 minutes, the image becomes dark. If another function is activated, normal screen brightness is restored.
2. To return to normal viewing, press the **PIP STILL** button again.

External Control Device Setup

- Connect the RS-232C input jack to an external control device (such as a computer or an A/V control system) and control the Monitor's functions externally.
- Connect the serial port of the control device to the RS-232C jack on the Monitor back panel.
- RS-232C connection cables are not supplied with the Monitor.

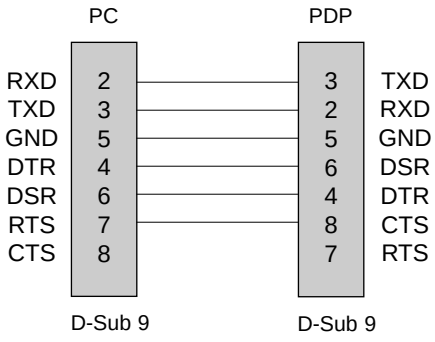
Type of Connector; D-Sub 9-Pin Male

No.	Pin name
1	No connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection

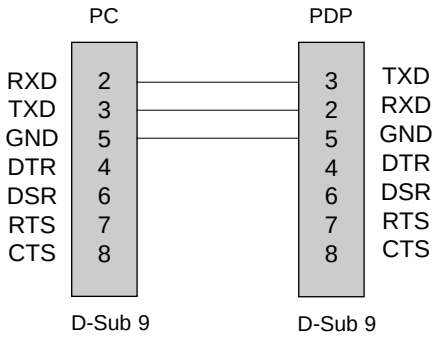


RS-232C Configurations

7-Wire Configuration
(Standard RS-232C cable)



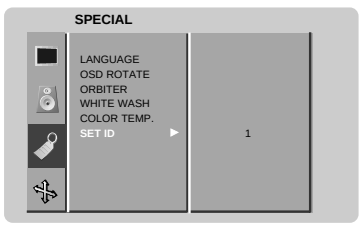
3-Wire Configuration
(Not standard)



Set ID

- Use this function to specify a monitor ID number.
- Refer to 'Real Data Mapping 1'. See page 27.

1. Press the **MENU** button and then use the ▲ / ▼ button to select the SPECIAL menu.
2. Press the ► button and then use ▲ / ▼ button to select **SET ID**.
3. Press the ► button and then use ◄ / ► button to adjust **SET ID** to choose the desired monitor ID number.
   • The adjustment range of **SET ID** is 1 ~ 99.



Communication Parameters

- Baud rate : 115200 bps (UART)
- Data length : 8 bits
- Parity : None
- Stop bit : 1 bit
- Communication code : ASCII code

** Use a crossed (reverse) cable.*

Command Reference List

	COMMAND 1	COMMAND 2	DATA (Hexadecimal)
01. Power	k	a	0 ~ 1
02. Input Select	k	b	0 ~ 4
03. Aspect Ratio	k	c	0 ~ 2
04. Screen Mute	k	d	0 ~ 1
05. Volume Mute	k	e	0 ~ 1
06. Volume Control	k	f	0 ~ 64
07. Contrast	k	g	0 ~ 64
08. Brightness	k	h	0 ~ 64
09. Color	k	i	0 ~ 64
10. Tint	k	j	0 ~ 64
11. Sharpness	k	k	0 ~ 64
12. OSD Select	k	l	0 ~ 1
13. External Control Mode	k	m	0 ~ 1
14. PIP/Twin Picture (DW)	k	n	0 ~ 4
15. PIP Sound Select	k	p	0 ~ 1
16. PIP Position	k	q	0 ~ 3
17. Treble	k	r	0 ~ 64
18. Bass	k	s	0 ~ 64
19. Balance	k	t	0 ~ 64
20. Color Temperature (ACC)	k	u	0 ~ 3
21. Red Adjustment	k	v	0 ~ 64
22. Green Adjustment	k	w	0 ~ 64
23. Blue Adjustment	k	$	0 ~ 64
24. PIP Input Source	k	y	0 ~ 3
25. Abnormal State	k	z	0 ~ 4
26. Orbiter	j	p	0 ~ 1
27. White Wash	j	q	0 ~ 1

* When setting 26 or 27, a menu won't appear on screen.

Transmission / Receiving Protocol

Transmission

[Command1][Command2][ ][Set ID][ ][Data][Cr]

* [Command 1]: First command to control PDP set. (j or k)
* [Command 2]: Second command to control PDP set.
* [Set ID]: You can adjust the set ID to choose desired monitor ID number in special menu. See previous page. Adjustment range is 1 ~ 99. When selecting Set ID '0', every connected PDP set is controlled. Set ID is indicated as decimal (1~99) on menu and as Hexa decimal (0 x 0 ~ 0 x 63) on transmission /receiving protocol.
* [DATA]: To transmit command data. Transmit 'FF' data to read status of command.
* [Cr]: Carriage Return ASCII code '0x0D'
* [ ]: ASCII code 'space (0x20)'

OK Acknowledgement

[Command2][ ][Set ID][ ][OK][Data][x]

* The Monitor transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

Error Acknowledgement

[Command2][ ][Set ID][ ][NG][Data][x]

* The Monitor transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

Data 1: Illegal Code
2: Function not supported
3: Wait more time

01. Power (Command2:a)

▶ To control Power On/Off of the Monitor.

Transmission

[k][a][ ][Set ID][ ][Data][Cr]

Data 0: Power Off 1: Power On

Acknowledgement

[a][ ][Set ID][ ][OK][Data][x]

▶ To show Power On/Off.

Transmission

[k][a][ ][Set ID][ ][FF][Cr]

Data 0: Power Off 1: Power On

Acknowledgement

[a][ ][Set ID][ ][OK][Data][x]

* In a like manner, if other functions transmit 'FF' data based on this format, acknowledgement data feedback presents status about each function.

02. Input Select (Command2:b)

▶ To select input source for the Monitor.
You can also select an input source using the INPUT SELECT button on the Monitor's remote control.

Transmission

[k][b][ ][Set ID][ ][Data][Cr]

Data 0: RGB 1 3: S-VIDEO
1: COMPONENT 4: RGB 2
2: VIDEO

Acknowledgement

[b][ ][Set ID][ ][OK][Data][x]

03. Aspect Ratio (Command2:c)

▶ To adjust the screen format (main picture format).
You can also adjust the screen format using the ARC (Aspect Ratio Control) button on remote control or in the screen menu.

Transmission

[k][c][ ][Set ID][ ][Data][Cr]

Data 0: Wide screen (16:9)
1: Normal screen (4:3)
2: Full screen (Zoom)

Acknowledgement

[c][ ][Set ID][ ][OK][Data][x]

* Using the PC input, select either 16:9 or 4:3 screen aspect ratio.

04. Screen Mute (Command2:d)

▶ To select screen Mute On/Off.

Transmission

[k][d][ ][Set ID][ ][Data][Cr]

Data 0: Screen mute off (Picture on)
1: Screen mute on (Picture off)

Acknowledgement

[d][ ][Set ID][ ][OK][Data][x]

05. Volume Mute (Command2:e)

▶ To control volume Mute On/Off.
You can also turn Mute on/off using the MUTE button on remote control.

Transmission

[k][e][ ][Set ID][ ][Data][Cr]

Data 0: Volume mute on (Volume off)
1: Volume mute off (Volume on)

Acknowledgement

[e][ ][Set ID][ ][OK][Data][x]

06. Volume Control (Command2:f)

▶ To adjust Volume.
You can also adjust sound with the volume buttons on remote control.

Transmission

[k][f][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping1'. See page 27.

Acknowledgement

[f][ ][Set ID][ ][OK][Data][x]

07. Contrast (Command2:g)

▶ To adjust Screen Contrast.
You can also adjust Contrast in the Picture menu.

Transmission

[k][g][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping1'. See page 27.

Acknowledgement

[g][ ][Set ID][ ][OK][Data][x]

08. Brightness (Command2:h)

► To adjust screen Brightness.
You can also adjust Brightness in the Picture menu.

Transmission

[k][h][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping1' as shown below.

Acknowledgement

[h][ ][Set ID][ ][OK][Data][x]

09. Color (Command2:i)

► To adjust the screen Color.
You can also adjust Color in the Picture menu.

Transmission

[k][i][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping1'as shown below.

Acknowledgement

[i][ ][Set ID][ ][OK][Data][x]

10. Tint (Command2:j)

► To adjust the screen Tnt.
You can also adjust Tint in the Picture menu.

Transmission

[k][j][ ][Set ID][ ][Data][Cr]

Data Red: 0 ~ Green: 64
∗ Refer to 'Real data mapping1' as shown right.

Acknowledgement

[j][ ][Set ID][ ][OK][Data][x]

11. Sharpness (Command2:k)

► To adjust the screen Sharpness.
You can also adjust Sharpness in the Picture menu.

Transmission

[k][k][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping1' as shown right.

Acknowledgement

[k][ ][Set ID][ ][OK][Data][x]

12. OSD Select (Command2:l)

► To select OSD (On Screen Display) on/off when controlling remotely.

Transmission

[k][l][ ][Set ID][ ][Data][Cr]

Data 0: OSD off 1: OSD on

Acknowledgement

[l][ ][Set ID][ ][OK][Data][x]

13. External Control Mode (Command2:m)

► To lock the front panel controls on the monitor and remote control. When setting this mode, you can only control the monitor with RS-232C.

Transmission

[k][m][ ][Set ID][ ][Data][Cr]

Data 0: Lock off 1 : Lock on

Acknowledgement

[m][ ][Set ID][ ][OK][Data][x]

* If you're not using the remote control, use this mode.
When main power is on/off, external control mode is released.

∗ **Real data mapping 1**

0 : Step 0
⋮
A : Step 10 (SET ID 10)
⋮
F : Step 15 (SET ID 15)
10 : Step 16 (SET ID 16)
⋮
64 : Step 100

14. PIP / Twin (DW) (Command2:n)

► To control PIP (Picture-in-Picture)/Twin picture.
You can also control PIP/Twin picture using the PIP or Twin picture button on the remote control or in the Screen menu.

Transmission

[k][n][ ][Set ID][ ][Data][Cr]

Data 0: PIP/DW off 3: DW2
1: PIP (S) 4: PIP (L)
2: DW1

Acknowledgement

[n][ ][Set ID][ ][OK][Data][x]

15. PIP Sound Select (Command2:p)

▶ To select main or sub sound for PIP/Twin picture.
You can also adjust main or sub sound for PIP/Twin picture using the PIP SOUND button on the remote control or in the Screen menu.

Transmission

[k][p][ ][Set ID][ ][Data][Cr]

Data 0: Main image sound
1: Sub image sound

Acknowledgement

[p][ ][Set ID][ ][OK][Data][x]

16. PIP Position (Command2:q)

▶ To select sub picture position for PIP.
You can also adjust the sub picture position using PIP POSITION button on the remote control or in the Screen menu.

Transmission

[k][q][ ][Set ID][ ][Data][Cr]

Data 0: Right down on screen
1: Left down on screen
2: Left up on screen
3: Right up on screen

Acknowledgement

[q][ ][Set ID][ ][OK][Data][x]

17. Treble (Command2:r)

▶ To adjust Treble.
You can also adjust Treble in the Sound menu.

Transmission

[k][r][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping1'. See page 27.

Acknowledgement

[r][ ][Set ID][ ][OK][Data][x]

18. Bass (Command2:s)

▶ To adjust Bass.
You can also adjust Bass in the Sound menu.

Transmission

[k][s][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping1'. See page 27.

Acknowledgement

[s][ ][Set ID][ ][OK][Data][x]

19. Balance (Command2:t)

▶ To adjust Balance.
You can also adjust Balance in the Sound menu.

Transmission

[k][t][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping1'. See page 27.

Acknowledgement

[t][ ][Set ID][ ][OK][Data][x]

20. Color Temperature (Command2:u)

▶ To adjust Color Temperature.
You can also adjust ACC in the Special menu.

Transmission

[k][u][ ][Set ID][ ][Data][Cr]

Data 0: Normal 1: Cool 2: Warm 3: User

Acknowledgement

[u][ ][Set ID][ ][OK][Data][x]

21. Red Adjustment (Command2:v)

▶ To adjust Red in Color Temperature.

Transmission

[k][v][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping 2' as shown below.

Acknowledgement

[v][ ][Set ID][ ][OK][Data][x]

∗ Real data mapping 2

0 : -10
5 : -9
A : -8
⋮
2D: -1
32: 0
37: +1
⋮
5F: +9
64: +10

22. Green Adjustment (Command2:w)

▶ To adjust Green in Color Temperature.

Transmission

[k][w][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64
∗ Refer to 'Real data mapping 2'. See page 28.

Acknowledgement

[w][ ][Set ID][ ][OK][Data][x]

23. Blue Adjustment (Command2:$)

▶ To adjust Blue in Color Temperature.

Transmission

[k][$][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max 64
∗ Refer to 'Real data mapping 2'. See page 28.

Acknowledgement

[$][ ][Set ID][ ][OK][Data][x]

24. PIP Input Select (Command2:y)

▶ To select input source for sub picture in PIP/Twin picture modes. You can also select input source for sub picture using PIP INPUT button on remote control.

Transmission

[k][y][ ][Set ID][ ][Data][Cr]

Data 0: RGB1 (DTV)
1: COMPONENT
2: VIDEO
3: S-VIDEO

Acknowledgement

[y][ ][Set ID][ ][OK][Data][x]

25. Abnormal State (Command2:z)

▶ To recognize an abnormal state.

Transmission

[k][z][ ][Set ID][ ][FF][Cr]

Data 0: Normal (Power on and signal)
1: No signal (Power on)
2: Turn the monitor off by remote control
3: Turn the monitor off by sleep time function
4: Turn the monitor off by RS-232C function
5: 5V down
6: AC down

Acknowledgement

[z][ ][Set ID][ ][OK][Data][x]

* This function is "read only".

26. Orbiter (Command2:p)

▶ To turn the Orbiter function on/off.
You can also turn Orbiter on/off in Special menu.

Transmission

[j][p][ ][Set ID][ ][Data][Cr]

Data 0: Orbiter off
1: Orbiter on

Acknowledgement

[p][ ][Set ID][ ][OK][Data][x]

27. White Wash (Command2:q)

▶ To turn the White Wash function on/off.
You can also turn White Wash on/off in Special menu.

Transmission

[j][q][ ][Set ID][ ][Data][Cr]

Data 0: White Wash off
1: White Wash on

Acknowledgement

[q][ ][Set ID][ ][OK][Data][x]

IR Code (NEC Format)

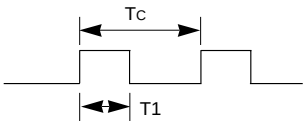
How to Connect

▶ Connect your wired remote control to the Remote port on the Monitor.
Set the CONTROL LOCK to 'ON' on the Monitor back panel to operate Monitor with wired remote control.

Remote Control IR Code (NEC Format)

▶ **Output waveform**

Single pulse, modulated with 37.917KHz signal at 455KHz

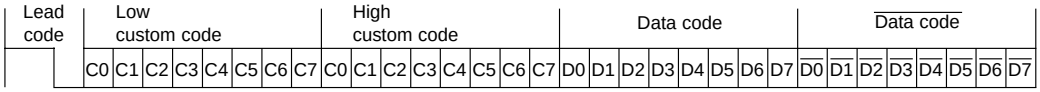


Carrier frequency

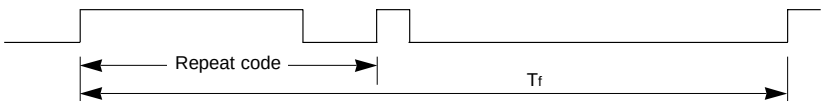
$F_{CAR} = 1/T_C = f_{OSC}/12$
Duty ratio = $T1/T_C = 1/3$

▶ **Configuration of frame**

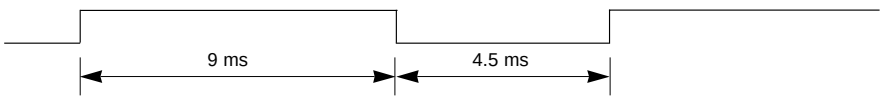
• 1st frame


Lead code
Low custom code
High custom code
Data code
Data code
C0 C1 C2 C3 C4 C5 C6 C7 C0 C1 C2 C3 C4 C5 C6 C7 D0 D1 D2 D3 D4 D5 D6 D7 D0 D1 D2 D3 D4 D5 D6 D7

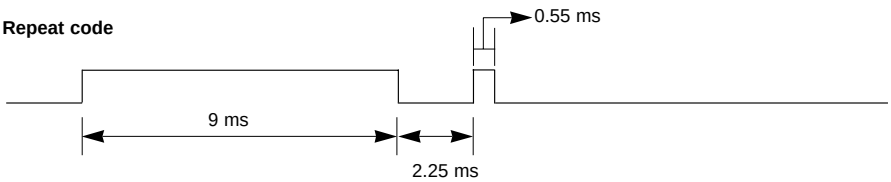
• Repeat frame



▶ **Lead code**

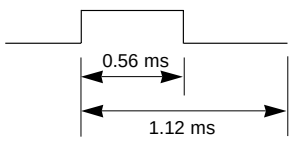


▶ **Repeat code**

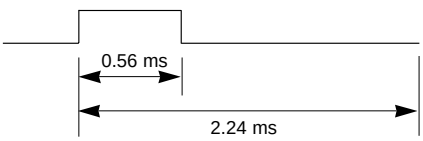


▶ **Bit description**

• Bit "0"

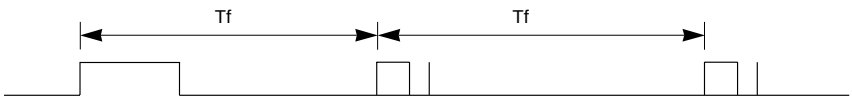


• Bit "1"



▶ **Frame interval : Tf**

The waveform is transmitted as long as a key is depressed.



Tf=108ms @455KHz

Code (Hexa)	Function	Note
00H	UP (▲)	R/C Button
01H	DOWN (▼)	R/C Button
02H	VOL+ (►)	R/C Button
03H	VOL- (◄)	R/C Button
08H	POWER	R/C Button (Power On/Off)
C4H	POWER ON	Discrete IR Code (Only Power On)
C5H	POWER OFF	Discrete IR Code (Only Power Off)
09H	MUTE	R/C Button
10H	Number Key 0	R/C Button
11H	Number Key 1	R/C Button
12H	Number Key 2	R/C Button
13H	Number Key 3	R/C Button
14H	Number Key 4	R/C Button
15H	Number Key 5	R/C Button
16H	Number Key 6	R/C Button
17H	Number Key 7	R/C Button
18H	Number Key 8	R/C Button
19H	Number Key 9	R/C Button
0BH	INPUT SELECT	R/C Button
98H	RGB 1	Discrete IR Code (Input RGB1 Selection)
C6H	RGB 2 (DVI input)	Discrete (Input RGB2 Selection)
5AH	VIDEO	Discrete (Input VIDEO Selection)
51H	S-VIDEO	Discrete (Input S-VIDEO Selection)
BFH	COMPONENT	Discrete (Input COMPONENT Selection)
0EH	SLEEP	R/C Button
3EH	KEY LOCK	R/C Button
40H	ZOOM +	R/C Button
41H	ZOOM -	R/C Button
43H	MENU	R/C Button
44H	OK (■)	R/C Button
4DH	APC	R/C Button
52H	DASP	R/C Button
60H	PIP	R/C Button
61H	PIP INPUT	R/C Button
62H	PIP POSITION	R/C Button
65H	PIP STILL	R/C Button
6BH	TWIN PICTURE	R/C Button
6CH	SOUND SELECT	R/C Button
7BH	Split Zoom	R/C Button
79H	ARC	R/C Button(4:3/16:9/Zoom Mode Selection)
76H	ARC (4:3)	Discrete IR Code (Only 4:3 mode)
77H	ARC (16:9)	Discrete IR Code (Only 16:9 mode)
AFH	ARC (ZOOM)	Discrete IR Code (Only ZOOM mode)
92H	AUTO CONFIG.	R/C Button

Maintenance

- Early malfunctions can be prevented. Careful and regular cleaning can extend the amount of time you will have your new Monitor. Be sure to turn the power off and unplug the power cord before you begin any cleaning.

Cleaning the Screen

1. Here's a great way to keep the dust off your screen for a while. Wet a soft cloth in a mixture of lukewarm water and a little fabric softener or dish washing detergent. Wring the cloth until it's almost dry, and then use it to wipe the screen.

2. Make sure the excess water is off the screen, and then let it air-dry before you turn on your Monitor.

Cleaning the Cabinet

To remove dirt or dust, wipe the cabinet with a soft, dry, lint-free cloth.
Please be sure not to use a wet cloth.

Extended Absence

If you leave your Monitor dormant for a long time (such as a vacation), it's a good idea to unplug the power cord to protect against possible damage from lightning or power surges.

Troubleshooting Checklist

No picture or sound	• Check whether the Monitor is turned on. • Is the power cord inserted into wall outlet? • Test the wall power outlet, plug another product's power cord into the wall outlet where the Monitor's power cord was plugged in.
Picture OK but No sound	• Press the **VOLUME** (►) button. • Sound muted? Press **MUTE** button.
The remote control doesn't work	• Check to see if there are any objects between the Plasma Display and the remote control causing obstruction. • Are batteries installed with correct polarity (+ to +, - to -)? (Refer to p.11) • Install new batteries. (Refer to p.11)
Picture appears slowly, after switching on	• This is normal, the image is muted during the Monitor's startup process. Please contact an authorized service center if the picture has not appeared after five minutes.
No or poor color or poor picture	• Select **COLOR** in the **PICTURE** menu and press the **VOLUME** (►) button. (Refer to p.15) • Keep a certain distance between the Monitor and the VCR. • Activate any function to restore the picture's brightness. (If a still picture is on the screen for more than 5 minutes, the screen gets dark.)
Horizontal/vertical bars or picture shaking	• Check for local interference such as an electrical appliance or power tool.
No output from one of the speakers	• Adjust **BALANCE** in the **SOUND** menu. (Refer to p.16)
Unusual sound from inside the monitor	• When the Monitor is turned on or off, a change in ambient humidity or temperature may result in an unusual sound. The unusual sound does not indicate a fault with the monitor.

Product Specifications

MODEL	P42W24P
Width (inches / mm)	40.7 / 1033
Height (inches / mm)	24.5 / 622
Depth (inches / mm)	3.2 / 81
Weight (pounds / kg)	75 / 34
Power requirement	AC120V, 60Hz
Resolution	852 x 480 (Dot)
Color	16,770,000 (256 steps of each R, G and B)
Operating Temperature Range	32 ~ 104°F (0 ~ 40°C)
Operating Humidity Range	Less than 80%
Maximum Elevation	6561 feet (2000m)

- The specifications shown above may be changed without notice for quality improvement.

Notes

zenith